

AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions of claims in this application.
Please amend claims 39 and 48, without prejudice or disclaimer, and add new claims 50-56 as follows:

1-38. (Canceled).

39. (Currently Amended) An apparatus for positioning a substrate with a plurality of sample detection chambers in a detection unit of a thermal cycling device, comprising:

a frame assembly, ~~said frame assembly~~ configured so that a substrate may be positioned in the frame assembly, said frame assembly being positionable in a thermal cycling device having temperature control for heating and cooling the substrate; and

a lens assembly, said lens assembly including a ~~plurality of plates, one of said plates~~ plate comprising ~~a lens plate in which~~:

a plurality of lenses; ~~are located for focusing a light which passes through the lenses~~

a plurality of contacts with the substrate, wherein the plurality of contacts are positioned on a lower surface of the plate to provide uniform pressure across the substrate; and

a plurality of through holes, wherein the plurality of through holes permit light to pass to and from each sample detection chamber of the substrate to the detection unit.

40. (Previously Presented) The apparatus of claim 39, wherein said lens assembly includes a top plate with a plurality of holes corresponding to the lenses of the lens plate.

41. (Original) The apparatus of claim 40, wherein said lens assembly further includes a middle plate, said middle plate providing support for each lens of the lens plate, said middle plate being pressed against a bottom surface of the top plate and the lens plate.

42. (Original) The apparatus of claim 41, wherein said middle plate includes a plurality of flexible biasing members for providing support for each lens of the lens plate by biasing each lens toward the lens plate.

43. (Original) The apparatus of claim 42, wherein each flexible biasing member comprises radially extending arms positioned around a hole in the middle plate aligned with each lens of the lens plate.

44. (Original) The apparatus of claim 39, wherein said lens plate includes a sealing element on the bottom surface thereof for engaging said substrate.

45. (Original) The apparatus of claim 44, wherein said sealing element comprises an elongate member having an interior cavity.

46. (Original) The apparatus of claim 39, wherein said frame assembly comprises a support plate with an upper surface against which the substrate may be placed and at least one raised surface around a periphery of the upper surface for engaging the substrate in order to limit lateral movement of the substrate.

47. (Original) The apparatus of claim 46, wherein said at least one raised surface is configured to engage outer edges of the substrate when the substrate is positioned in the frame assembly.

48. (Currently Amended) A method of positioning a substrate with at least one sample detection chamber into a sample detection instrument of a thermal cycling device, comprising the steps of:

opening the sample detection instrument of the thermal cycling device;
placing a support frame on the sample detection instrument;
inserting a substrate with at least one sample detection chamber in the support frame;
placing a lens plate having a plurality of lenses over the substrate and support frame, and aligning at least one hole in the lens plate relative to the sample detection chamber of the substrate; ~~and~~
closing the sample detection instrument; and
heating and cooling the substrate using temperature control by the thermal cycling device, thereby subjecting the substrate to cycles of heating and cooling.

49. (Original) The method of claim 48, wherein said step of placing a lens plate over the substrate includes engaging a portion of the lens plate against a top surface of the at least one sample detection chamber.

50. (New) The apparatus of claim 39, wherein the plurality of contacts do not provide substantial thermal transfer between the substrate and the plate relative to the thermal transfer at the bottom surface of the substrate.

51. (New) The apparatus of claim 39, wherein the substrate comprises a microcard.

52. (New) An apparatus for positioning a substrate with a plurality of sample detection chambers in a detection unit, comprising:

a thermal cycling device having temperature control for heating and cooling the substrate, said thermal cycling device including a detection unit;

a frame assembly configured so that a substrate may be positioned in the frame assembly, the frame assembly being positionable in the thermal cycling device;

a lens assembly comprising a plate, said plate comprising a plurality of lenses and a plurality of through holes, wherein the plurality of through holes permit light to pass to and from each sample detection chamber of the substrate to the detection unit.

53. (New) The apparatus of claim 52, wherein the substrate comprises a microcard.

54. (New) An apparatus for positioning a plurality of sample detection chambers in a detection unit and a thermal cycling device, comprising:

a substrate positionable in a thermal cycling device having temperature control for heating and cooling the substrate, the substrate comprising a plurality of sample detection chambers, wherein the thermal cycling device is configured to subject the substrate to cycles of heating and cooling, and wherein the detection unit is configured to monitor nucleic acid amplification in the sample detection chambers; and

a plate comprising:

a plurality of contacts with the substrate, wherein the plurality of contacts are positioned on a lower surface of the plate to provide uniform pressure across the substrate; and

a plurality of through holes, wherein the plurality of through holes permit light to pass to and from each sample detection chamber of the substrate to the detection unit and wherein the through holes are aligned between the sample detection chambers and the detection unit.

55. (New) The apparatus of claim 54, wherein the plurality of contacts do not provide substantial thermal transfer between the substrate and the plate relative to the thermal transfer at a bottom surface of the substrate.

56. (New) The apparatus of claim 54, wherein the substrate comprises a microcard.